

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended): An electronic ~~or optoelectronics~~ switching device having an active semiconductor region including a semiconductor material of a metal complex.
2. (original): A device as claimed in claim 1, wherein the metal complex comprises a chain of cations and anions, wherein each anion and cation comprises a metal atom and the ions are bonded such that charge carriers of the metal atoms are delocalized along the chain.
3. (original): A device as claimed in claim 2, wherein the ions are bonded to each other by means of the metal atoms.
4. (currently amended): A device as claimed in claim 2-~~or 3~~, wherein each ion comprises a metal atom and ligands linked to the metal atom.
5. (original): A device as claimed in claim 4, wherein each ion is substantially planar.
6. (currently amended): A device as claimed in claim 4-~~or 5~~, wherein at least some of the ligands comprise a solubilizing moiety, preferably n alkyl chain.

7. (original): A device as claimed in claim 6, wherein the alkyl chain is a branched alkyl chain.

8. (original): A device as claimed in claim 7, wherein the alkyl chain is (S)-3,7-dimethyloctyl.

9. (currently amended): A device as claimed in ~~any of~~ claims 6-to-8, wherein at least some of the ligands are of the form NH₂R, where R is an alkyl chain.

10. (original): A device as claimed in claim 9, wherein all of the ligands of the anions are of the form NH₂R.

11. (currently amended): A device as claimed in ~~any of~~ claims 4-to-10, wherein at least some of the ligands consist of halide atoms.

12. (original): A device as claimed in claim 11, wherein the halide atoms are Cl.

13. (currently amended): A device as claimed in claim 11-or-12, wherein all of the ligands of the cations consist of halide atoms.

14. (currently amended): A device as claimed in ~~any of~~ claims 2-to-13, wherein all the anions are the same as each other and all the cations are the same as each other.

15. (currently amended): A device as claimed in ~~any of~~ claims 2-to-14, wherein the length of the chain is in the range from 10 to 10,000 ions.

16. (currently amended): A device as claimed in ~~any of~~ claims 2-to-15, wherein each of the said metal atoms is independently on of Pt, Pd, Au, Ag, Ni, Cu.

17. (original): A device as claimed in claim 16, wherein all the said metal atoms are Pt.

18. (currently amended): A device as claimed in ~~any of~~ claims 2-to-17, wherein at least some of the ligands comprise an optically active moiety.

19. (original): A device as claimed in claim 18, wherein the optically active functional moiety is a fluorescent moiety or a phosphorescent moiety.

20. (currently amended): A device as claimed in ~~any of~~ claims 2-to-19, wherein at least some of the ligands comprise an electron donor moiety and at least some of the other ligands comprise an electron acceptor moiety and the said moieties are arranged to interact to form donor-acceptor complexes.

21. (original): A device as claimed in claim 20, wherein the electron donor moieties are comprised by ligands of either the anions or cations and the electron acceptor moieties are comprised by the other of the anions and cations.

22. (currently amended): A device as claimed in ~~any of~~ claims 2-~~to~~ 21, wherein at least some of the ligands comprise a charge transporting moiety.

23. (currently amended): A device as claimed in ~~claim 1~~~~any preceding claim~~, wherein the said material is soluble.

24. and 25 (canceled).

26. (currently amended): A device as claimed in ~~claim 1~~~~any preceding claim~~, wherein the device is a transistor.

27. (currently amended): A device as claimed in ~~claim 1~~~~any preceding claim~~, wherein the device is a field effect transistor.

28. – 30. (canceled).

31. (currently amended): A method of forming an active semiconductor region of an electronic switching or optoelectronic device, the method comprising processing a metal

complex from solution to form the said region.

32. (currently amended): A method of forming an active semiconductor region of an electronic switching or optoelectronic device, the method comprising processing a metal complex from solution to form the said region, wherein said metal complex comprises a chain of cations and anions, wherein each anion and cation comprises a metal atom and the ions are bonded such that charge carriers of the metal atoms are delocalized along the chain.

33. (currently amended): A method of producing a semiconductor device, the method including depositing a semiconductor material on a substrate to form a semiconductor region, and contacting purifying a semiconductor material, the method comprising contacting the semiconductor device with material with a solvent in situ on the substrate and thereby removing impurities from the semiconductor material.

34. (currently amended): A method as claimed in claim 33, wherein the semiconductor material is soluble.

35. (currently amended): A method as claimed in claim 34, wherein the semiconductor material is insoluble in the solvent.

36. (currently amended): A method as claimed in any of claims 33 to 35, wherein the solvent is water.

37. (currently amended): A method as claimed in ~~any of~~ claims 33-to-36, wherein the material comprises a metal complex.

38. (original): A method as claimed in claim 37, wherein the material comprises a chain of cations and anions, wherein *each* anion and cation comprises a metal atom and the ions are bonded such that charge carriers of the metal atoms are delocalised along the chain.

39. (canceled).

40. (currently amended): A method as claimed in claim 3339, wherein the semiconductor ~~material~~~~region~~ forms the active semiconductor region of ~~an electronic or optoelectronic~~~~the semiconductor~~ device.

41. (currently amended): A method as claimed in claim 3340, comprising removing the device from the solvent from the material and completing the formation of the ~~semiconductor~~~~electronic or electronic~~ device.